BISS Biodiversity Information Science and Standards

Biodiversity Information Science and Standards 8: e139238
doi: 10.3897/biss.8.139238

OPEN ACCESS

Conference Abstract

Conservation in the Herbarium: Procedures and Techniques for Restoration in the Collections

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Received: 14 Oct 2024 | Published: 16 Oct 2024

Citation: Drinkell C (2024) Conservation in the Herbarium: Procedures and Techniques for Restoration in the Collections. Biodiversity Information Science and Standards 8: e139238. https://doi.org/10.3897/biss.8.139238

Abstract

Kew Herbarium was established almost 200 years ago and is recognised as a globally important research facility, holding preserved plant material collected mostly over a time span of 170 years. The collections are used extensively by a global community of researchers: 5,000 specimen loans and samples are shipped out worldwide for research, and the herbarium in London clocks up an impressive 3,000 visitor-days annually according to Kew Science Collections Strategy 2018–2028. This valuable resource requires careful management to ensure appropriate standards are maintained, including essential conservation work of the collections. This presentation outlines some of Kew Herbarium's crucial conservation requirements and priorities.

Kew's Herbarium is one of the largest in the world, with around seven million pressed plant specimens and additional carpological, or bulky plant collections. The first purpose-built wing of Kew Herbarium was constructed in 1877 when there was a need for greater space due to botanical exploration of the British Empire. Subsequent wings were added between 1902 and 1969, with further expansion into the basement, and a modern wing added in 2009. Most of the building pre-dates climate control yet best practice standards in collections care, such as pest management, have generally been exemplary throughout the herbarium's history, although conservation work has been sparse. The alleged threats and controversy to the safety of the collection in its present location and the proposed relocation of Kew Herbarium have been well publicised this past year.

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Meanwhile, the four-year mass digitisation of the herbarium (and fungarium) began in 2022, to provide high-resolution images and label transcriptions, made freely available online via the new Kew Data Portal. During the mass digitisation project, numerous issues were found in the collections requiring skilled conservation work. By the very nature of a large and busy herbarium, repeated use of the collections over decades or even centuries causes wear and tear, and the project presents itself as an opportunity for those specimens to receive preventive and remedial conservation. Typical damage incurred includes plant parts and labels becoming loose or detached from the backing sheets; deteriorated, dusty, torn sheets and labels; residue of pest and mould damage. Digitisation Officers on the front-line of the ongoing imaging process are extracting physical specimens from their workflow, which require urgent need of repair. Additionally, the removal of redundant or surplus barcodes from herbarium sheets due to human error has added to the need for conservation work.

We initially recruited a 12-week Project Conservator intending to understand conservation concerns arising from the digitisation project and to advise on, and undertake, the various specialist tasks—a role that has subsequently been extended to one year. With a clear plan in place and a list of priorities requiring attention, the first job was to familiarise our new conservator—the first ever employed specifically to work with Kew's herbarium collections—with the inner workings of the herbarium.

Jana Kostalikova came to Kew as an experienced Paper and Collection Care Conservator, having worked in museums, historic houses and libraries, and archive collections. We soon realised that a working scientific collection such as Kew Herbarium required our new conservator to adjust her usual working practices. Herbarium specimens are in a constant state of flux, e.g., new determination labels being added, or samples being removed. Therefore, Jana's conservation requirement has had to involve a pragmatic approach in line with improving the condition of specimens to allow for repeated and extensive use, whilst following conservation standards of practice.

This new role initially involved a degree of investigation into appropriate needs for preventive and remedial conservation following the guidance of herbarium users. Whilst plenty of literature is available, for example, on the conservation and preservation of zoological and entomological natural history collections, we found limited documentation about treatments relating to herbarium specimens. The lack of literature on the conservation, cleaning, repairing and re-housing of herbarium sheets and bulky carpological specimens could perhaps be a consequence of plant blindness. Few, if any herbaria have a designated conservator, and specialism for herbarium or botanical conservation training seems limited at best, with herbaria largely relying on gained experience from curators and researchers to undertake this work.

At Kew Herbarium, the Project Conservator's guidance has now resulted in herbarium curation staff being better informed about appropriate conservation standards and best practices. Jana is creating reports and working protocols with before-and-after instructional photos, literature citations and surveys. For example, the treatment of mouldy specimens has resulted in a condition survey to monitor the air quality of the

collection buildings and the use of air filtration in the worst affected areas; a standard operational procedure for workflows in cleaning specimens; provision of a permanent working space for treatment; and health and safety awareness. Work is still progressing on cleaning mould-impacted specimens, to fully understand the requirements, with advice being sought from mycologists at Kew Fungarium. Successes from the Project Conservator to date have been the sharing of learned experiences, expertise and knowledge by all parties; having open discussions with various stakeholders to resolve conflicting opinions; bridging the gap between departments such as digitisation, curators, and researchers; and providing information, supervision and instructions on good conservation practice.

Keywords

best practice, collection care, digitisation, herbarium handbook

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Presented at

SPNHC-TDWG 2024

Acknowledgements

Thanks go to Jana Kostalikova and Chloe Mills

Conflicts of interest

The authors have declared that no competing interests exist.